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ANIMAL SCIENCE

A new genus of Phlugidini (Insecta, Orthoptera, Tettigoniidae, Meconematinae) from the Atlantic Forest

ANDRÉ F. ANTUNES, PEDRO G.B. SOUZA-DIAS & DANIELA M. TAKIYA

Abstract: In the Neotropical Region, Phlugidini is the most diverse tribe of Meconematinae, with 62 valid species in 10 genera, six of them recorded from Brazil. *Brachyphlugis* **gen. nov.** is described herein based on two new species, *Brachyphlugis longicercalis* **sp. nov.** (type species) and *Brachyphlugis curvata* **sp. nov.**, collected in Parque Nacional do Itatiaia and Reserva Biológica do Tinguá, both in the Atlantic Forest of Rio de Janeiro State. The new genus is most similar to *Neophlugis*, but it can be distinguished from the latter and other neotropical Phlugidini by the following combination of characteristics: (1) mandibles symmetrical; (2) tegmen extending beyond metanotum; (3) pronotal disk posterior margin convex; (4) tenth tergite strongly projected and downcurved; (5) male cercus pronounced with a larger base and acuminate apex; (6) paraproct modified with developed spine; (7) male subgenital plate with two distolateral projections connected to a pair of styles; and (8) female subgenital plate wider than long, posterior margin with two projections. An up-to-date key to neotropical Phlugidini genera is also provided.

Key words: katydids, predatory katydids, Brazilian Atlantic Forest, new species.

INTRODUCTION

Meconematinae Burmeister, 1838 contains 1,011 species of katydids distributed around the world, of which 744 belong to the tribe Meconematini Burmeister, 1838 found in all biogeographic regions, except for Neotropical and Australian ones. The other tribes, Phisidini Jin, 1987 and Phlugidini Eichler, 1938, with 159 and 108 species, respectively, are recorded in all biogeographic regions except the Nearctic and Palearctic ones (Cigliano et al. 2024). Previous phylogenetic analyses (Mugleston et al. 2013, 2018) have highlighted that, although monophyletic, Phlugidini is not related to other Meconematinae tribes, being recovered as sister to Conocephalinae. However, since no formal nomenclatural change was proposed, we follow the classification of the Orthoptera Species File (Cigliano et al. 2024), considering Phlugidini as a tribe within Meconematinae.

Representatives of Meconematinae are characterized by their delicate appearance, slender body, mostly light green or yellow coloration, with spines of prosternum absent and open tympanum of the foretibia (Kevan & Jin 1993, Sperber et al. 2012). However, diagnostic characteristics more often used for their identification are the small size combined with spines on the foretibia and upcurved ovipositor of females. Also, individuals are predatory, arboreal, and mostly diurnal (unlike most other katydids) (Nickle 2005, Sperber et al. 2012).

Phlugidini includes 17 extant genera, 10 of them occurring in the Neotropical Region, and six of them are recorded from Brazil: *Anisophlugis* Chamorro-Rengifo & Olivier, 2017, *Arboraptor* Mendes, Oliveira, Chamorro-Rengifo & Rafael,

2018, *Cephalophlugis* Gorochov, 1998, *Phlugiola* Karny, 1907, *Phlugis* Stål, 1861, and *Tyrannoraptor* Mendes, Oliveira, Chamorro-Rengifo & Rafael, 2018 (Cigliano et al. 2024, Mendes 2024) (Fig. 6). Here, we describe a new genus with two species of Phlugidini from the Atlantic Forest in Southeastern Brazil and provide an up-to-date key to the genera of the tribe.

The ZooBank Life Science Identifier (LSID) of this publication is: urn:lsid:zoobank.org:pub:A28BA797-ACEF-4535-AAE4-8DA089799A6A.

MATERIALS AND METHODS

Five male and seven female specimens of *Brachyphlugis* **gen. nov.**, all deposited at Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro (MNRJ), were studied. Specimens were collected at Parque Nacional do Itatiaia, Itatiaia, and Reserva Biológica do Tinguá, Nova Iguaçu, both in Rio de Janeiro State.

We used the keys to the neotropical genera of Phlugidini, available in Mendes et al. (2018) and modified in Tavares et al. (2022), for identification. The description follows Mendes et al. (2018) and Chamorro-Rengifo & Olivier (2017). Photographs of habitus and morphological features were taken using a Leica MC190 HD camera attached to a Leica M205C stereomicroscope with the Leica Application Suite X software.

In the examined material, each label is quoted between quotation marks (“”), vertical bars (|) denote separate lines, brackets [] author interpretations, and repositories are indicated in parentheses. Abbreviations in Measurements sections are: body length (BdL), pronotum length (PrL), tegmen length (TegL), foreleg length (FlegL), hind leg length (HlegL) and ovipositor length (OvL).

RESULTS

Meconematinae Burmeister, 1838

Phlugidini Eichler, 1938

Brachyphlugis Antunes, Souza-Dias & Takiya **gen. nov.**

Figs. 1-5

ZoobankLifeScienceIdentifier(LSID)-urn:lsid:zoobank.org:act:A000070B-9613-48B1-AA82-02C779CF1443.

Type species. *Brachyphlugis longicercalis* Antunes, Souza-Dias & Takiya **sp. nov.**

Figs. 1-2, 5

Diagnosis. Male mandibles symmetrical (Figs. 1c, 3c); tegmen extending beyond metanotum (Figs. 1e, 2e, 3e, 4e, 5a, c-d); pronotal disk posterior margin convex (Figs. 1d, 2d, 3d, 4d, 5a, c); male tenth tergite strongly projected and downcurved (Figs. 1p-q, 3p); male cercus pronounced with base wider and acuminate apex (Figs. 1o-s, 3o-p, r, 5a, c-d); male paraproct modified with developed spine (Figs. 1p-q, 3q); male subgenital plate with pair of distolateral projections, each connected to a stylus (Figs. 1s, 3r); female subgenital plate wider than long, posterior margin with pair of projections (Figs. 2h, 4h).

Description. *Head* triangular in frontal view (Figs. 1c, 2c, 3c, 4c); fastigium of frons not pronounced, separating the antennal margins in frontal view (Figs. 1c, 2c, 3c, 4c); frons weakly concave (Figs. 1c, 2c, 3c, 4c); gena smooth (Figs. 1c, 2c, 3c, 4c); clypeus weakly inflated with two small tubercules on inferior margin (Figs. 1c, 2c, 3c, 4c); labrum almost circular (Figs. 1c, 2c, 3c, 4c); mandible symmetrical (Figs. 1c, 3c). *Thorax*. Pronotal disk smooth, with anterior margin weakly concave and posterior margin strongly convex (Figs. 1d, 2d, 3d, 4d, 5a, c-d); lateral lobes rounded, with lower margin almost straight and a small concavity near to posterior margin, and posterior margin oblique (Figs. 1e, 2e, 3e, 4e); auditory spiracle with two distinct regions (Figs.

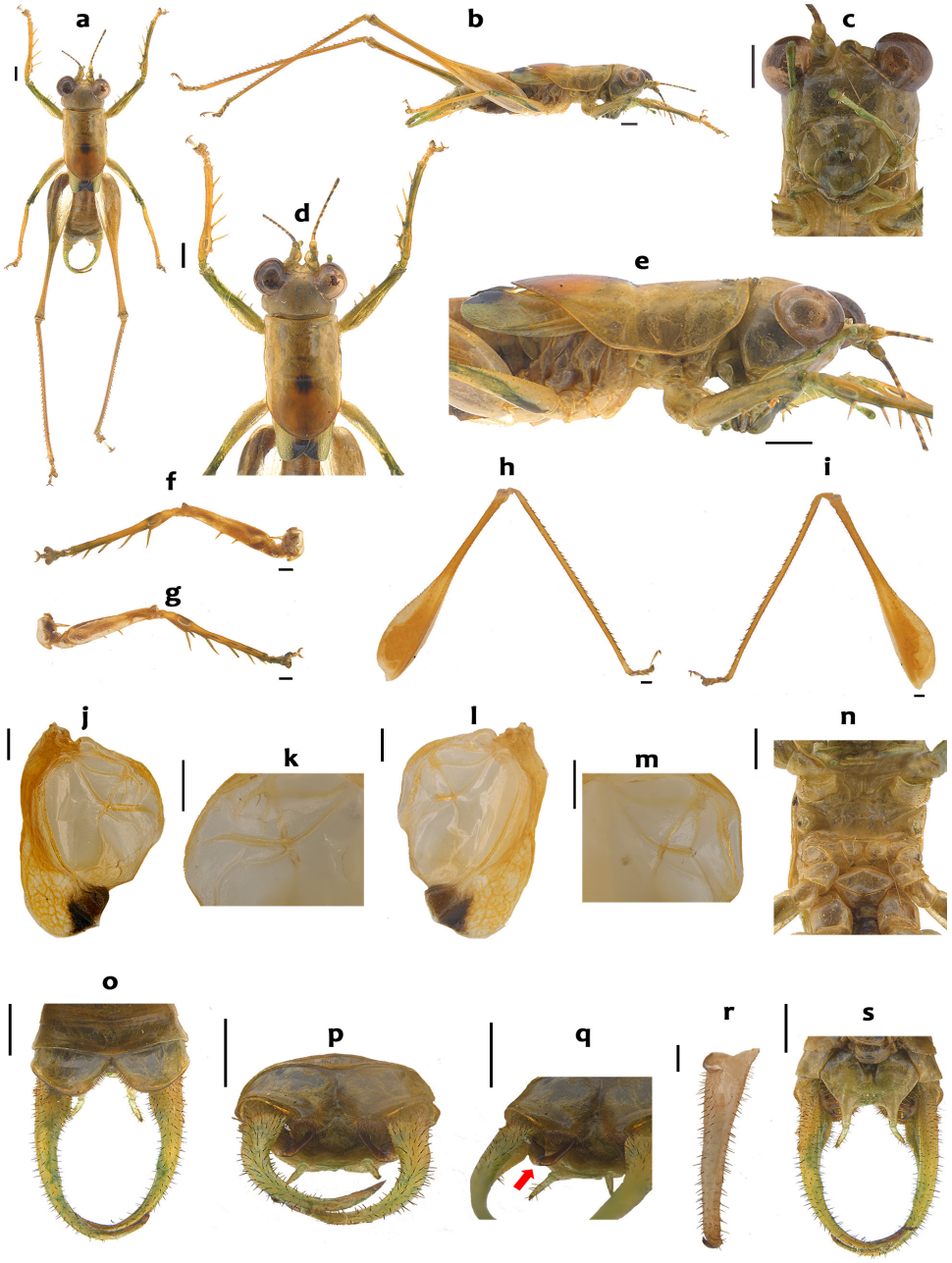

Figure 1. ***Brachyphlugis longicercalis*** **gen. et sp. nov. male external morphology. (a) dorsal habitus; (b) lateral habitus; (c) head, in frontal view; (d) head and thorax, in dorsal view; (e) head and thorax, in lateral view; (f-g) right foreleg, (f) inner margin, (g) outer margin; (h-i) right hind leg, (h) inner margin, (i) outer margin; (j-m) tegmen, (j) left tegmina, (k) left stridulatory file, (l) right tegmina, (m) right stridulatory file; (n) thorax, in ventral view; (o-s) terminalia, (o) in dorsal view, (p) in posterior view, (q) in posterior view with paraproct, (r) left cercus, in internal view, and (s) in ventral view. Scale bar: 1mm.**

1e, 2e, 3e, 4e); proesternum triangular laterally expanded with two small tubercles on the middle portion (Figs. 1n, 3n); mesosternum triangular laterally expanded with two developed tubercles (Figs. 1n, 3n); metasternum with two distinct regions (Figs. 1n, 3n). *Wings*. Brachypterous; tegmen extending beyond thorax (Figs. 1e, 2e, 3e, 4e). *Legs*. All legs armed (Figs. 1f-i, 3f-i); foreleg precoxal spine present, femur with three ventral spines, tibia with five pairs of ventral spurs, tympanum oval and closed on both sides (Fig. 1f-g, 3f-g).

Description of male. *Thorax*. Pronotal disk pronounced, covering two-thirds of tegmen length (Figs. 1d, 3d, 5a, c-d). *Wings*. Tegmen reaching fourth abdominal tergite; wings absent (Figs. 1e, 3e). *Stridulatory area* oval, measuring more than half of tegmen length (Figs. 1j, l, 3j,

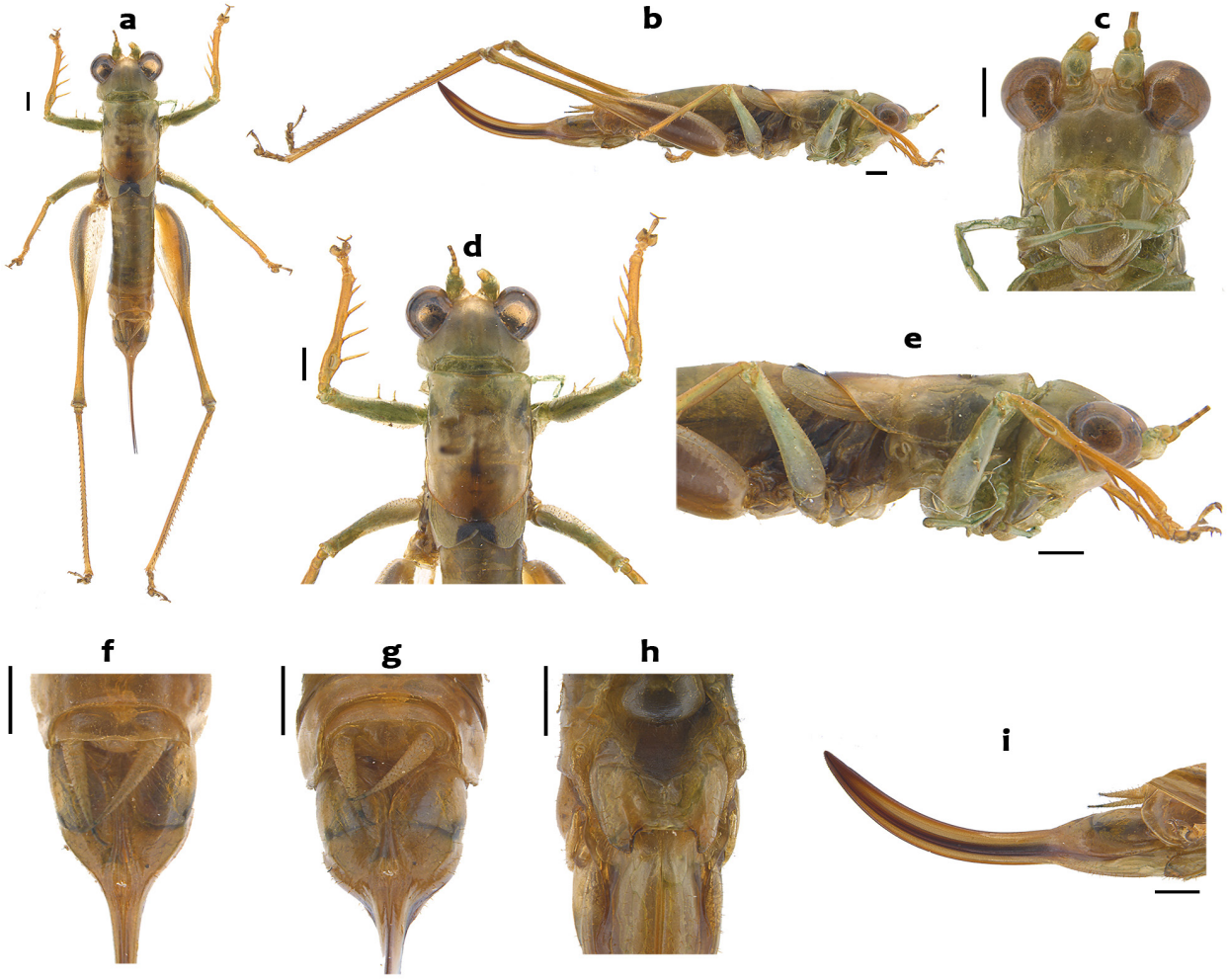

Figure 2. ***Brachyphlugis longicercalis*** **gen. et sp. nov. female external morphology. (a) dorsal habitus; (b) lateral habitus; (c) head, in frontal view; (d) head and thorax, in dorsal view; (e) head and thorax, in lateral view; (f-h) terminalia, (f) in dorsal view, (g) in postero-dorsal view, (h) in ventral view; (i) ovipositor. Scale bar: 1mm.**

l); right stridulatory file weakly curved and left stridulatory file weakly sinusoidal (Figs. 1k, m, 3k, m). *Tenth tergite* divided into two equal sides (Figs. 1o, 3o). *Cercus* pronounced with a base larger and acuminate apex (Figs. 1o-s, 3o-p, s, 5a, c-d). *Paraproct* modified, with two distinct regions (Figs. 1q, 3q). *Subgenital plate* wide, posterior margin with paired distolateral projections, each connected to a stylus (Figs. 1s, 3r).

Description of female. *Thorax.* Pronotal disk weakly pronounced (Figs. 2d, 4d). *Wings.* Tegmen almost reaching second abdominal tergite (Figs. 2e, 4e, 5b); wing absent. *Tenth tergite* flat, posterior margin almost straight (Figs. 2f, 4f). *Cercus* pronounced with strongly acuminate apex (Figs. 2f-g, 4f-g). *Subgenital plate* wider than long, posterior margin with paired projections (Figs. 2h, 4h). *Ovipositor* upcurved (Figs. 2i, 4i, 5b).

Etymology. The feminine name refers to Greek *brachy* (βραχύς), related to the wing condition of species, in combination with *Phlugis,* the type genus of Phlugidini.

Taxonomic notes. *Brachyphlugis* **gen. nov.** is similar and shares with *Speculophlugis* Woodrow, Pulver, Veitch & Montealegre-Z and *Neophlugis* Gorochov the following

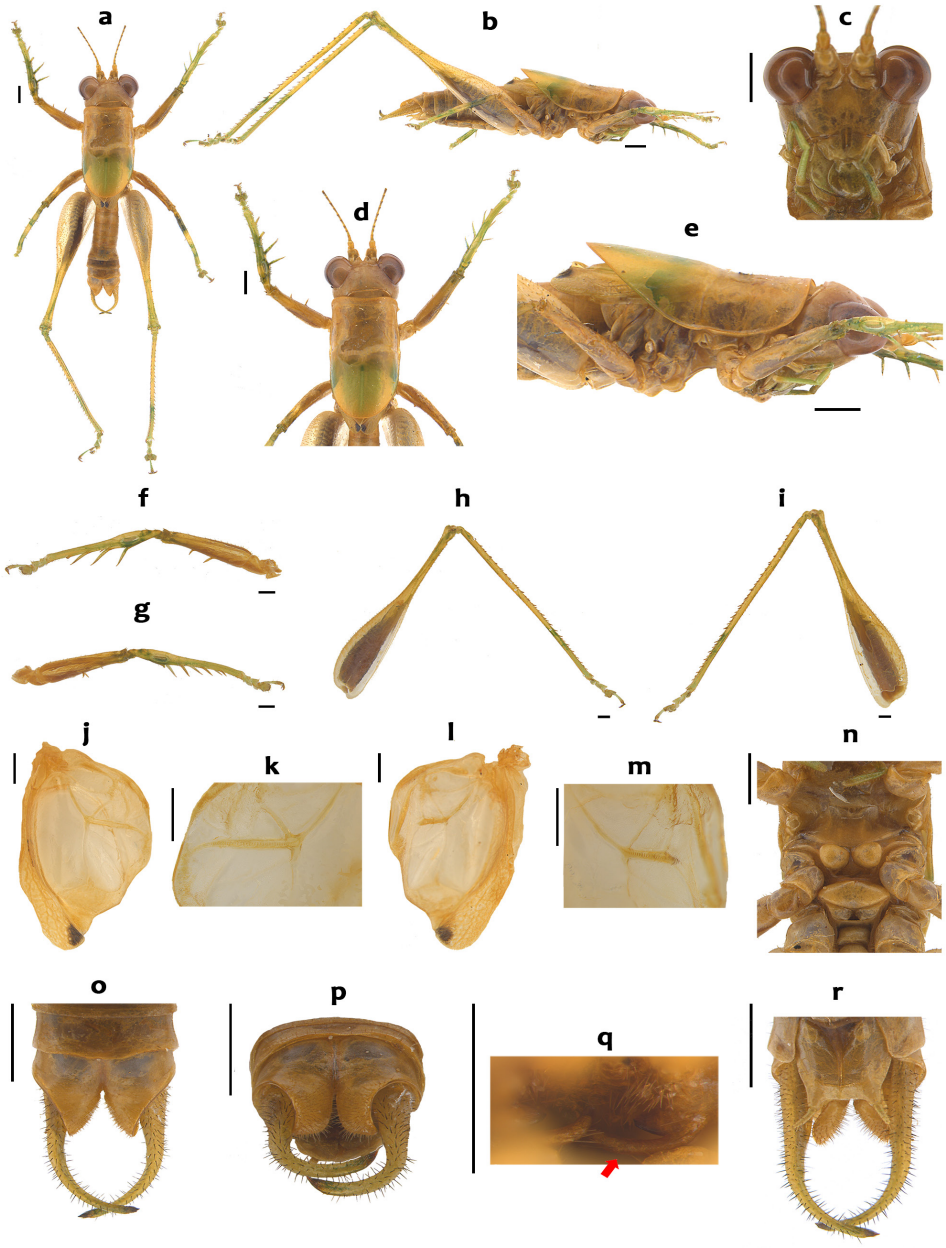

Figure 3. ***Brachyphlugis curvata*** **gen. et sp. nov.** male external morphology. (a) dorsal habitus; (b) lateral habitus; (c) head, in frontal view; (d) head and thorax, in dorsal view; (e) head and thorax, in lateral view; (f-g) right foreleg, (f) inner margin, (g) outer margin; (h-i) right hind leg, (h) inner margin, (i) outer margin; (j-m) tegmen, (j) left tegmina, (k) left stridulatory file, (l) right tegmina, (m) right stridulatory file; (n) thorax, in ventral view; (o-r) terminalia, (o) in dorsal view, (p) in posterior view, (q) in posterior view with paraproct and (r) in ventral view. Scale bar: 1mm.

characteristics: (1) tegmina reduced (Figs. 1a, 2a, 3a, 4a); (2) male tenth tergite pronounced (Figs. 1o, 3o); and (3) male cercus expanded, extending beyond the subgenital plate apex (Figs. 1s, 3r). However, *Brachyphlugis* **gen. nov.** can be distinguished from *Speculophlugis* by the male tenth tergite with two downcurved robust projections (Figs. 1o-p, 3o-p) and the male subgenital plate styles measuring less than half of the cercus length (Figs. 1s, 3r) (male tenth tergite projection cylindrical with acuminate apex and male subgenital plate styles robust measuring more than half of the cercus length in *Speculophlugis*), and from *Neophlugis* by the male tenth tergite strongly projected (Figs. 1o, 3o) and unmodified male cercus (Figs. 1o-s, 3o-p, r) (male tenth tergite poorly projected and male cercus with a little medial lobe in *Neophlugis*).

Brachyphlugis longicercalis Antunes, Souza-Dias & Takiya **sp. nov.**

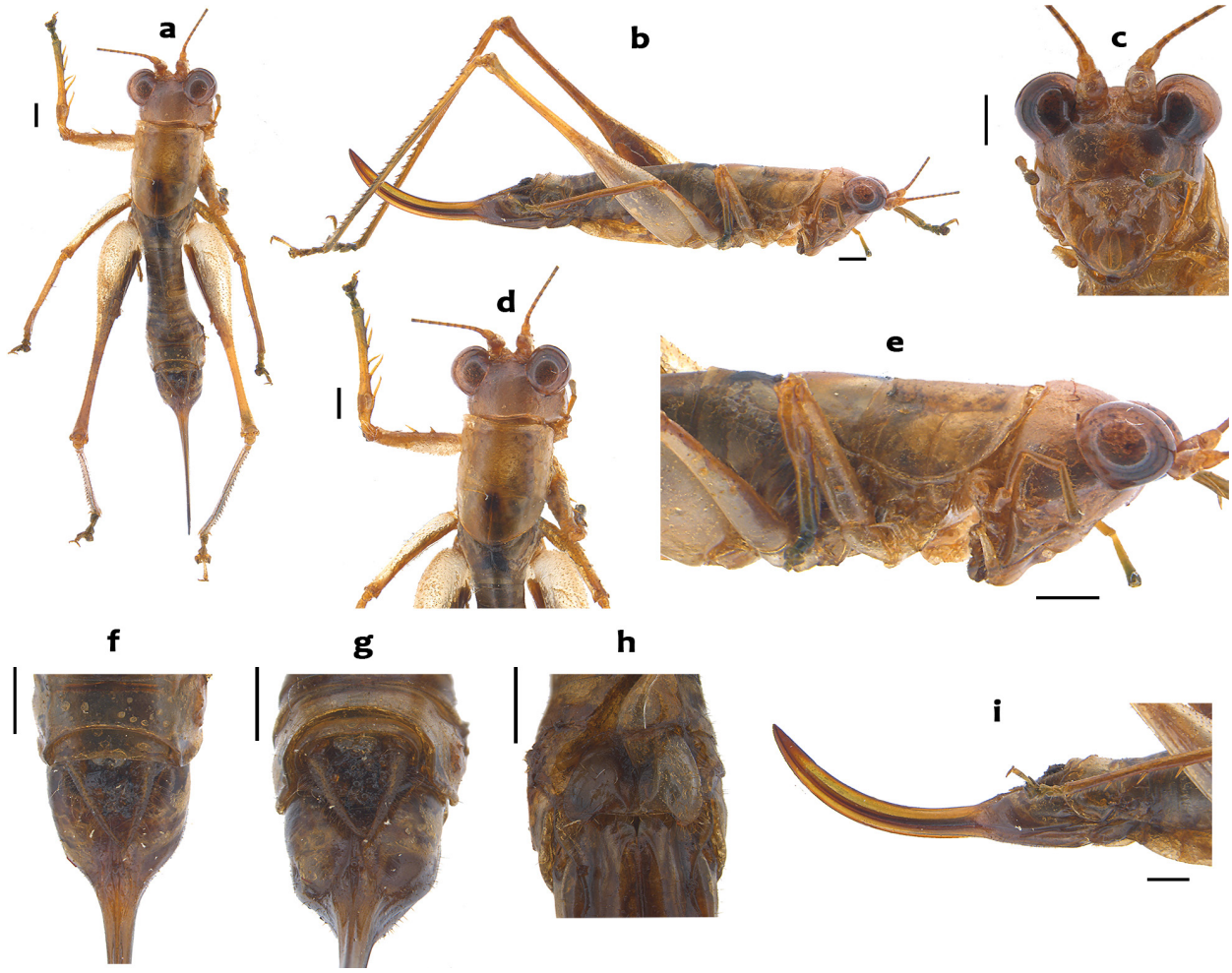

Figure 4. ***Brachyphlugis curvata*** **gen. et sp. nov. female external morphology. (a) dorsal habitus; (b) lateral habitus; (c) head, in frontal view; (d) head and thorax, in dorsal view; (e) head and thorax, in lateral view; (f-h) terminalia, (f) in dorsal view, (g) in postero-dorsal view, (h) in ventral view; (i) ovipositor. Scale bar: 1mm.**

Figs. 1-2, 5

Zoobank Life Science Identifier (LSID) - urn:lsid:zoobank.org:act:3E559ACB-DD21-470F-A4EF-282832EE13B8.

Type locality. Brazil, Rio de Janeiro, Nova Iguaçu, Reserva Biológica do Tinguá.

Diagnosis. Pronotal disk with a central dark macula (circular in males) (Figs. 1a, d, 5a, c-d). Male tegmina reaching fourth tergite, with a distinct black macula along inner margins and occupying almost half of the surface of each tegmen in dorsal view; inner margins broadly overlapped (Figs. 1a, d-e, 5a, c-d). Tenth tergite of male divided into two equal sides, each side slightly wider than long in dorsal view, apex broadly rounded (Figs. 1a, o-q). Cercus of male pronounced with a wider base and acuminate apex, internally with a sulcus extending from half the length to the apex (Figs. 1o-s, 5a, c-d). Male paraproct divided into two distinct regions: internal with a large spine and external rounded (Figs. 1p-q). Female subgenital plate with two paired triangular projections (Figs. 2h).

Description. *Head.* Antennal orbit sclerite dorsally with rounded projection and frontally with weakly pronounced margin (Figs 1c-d, 2c-d); eye three and a half times wider than scapus width and approximately two times longer

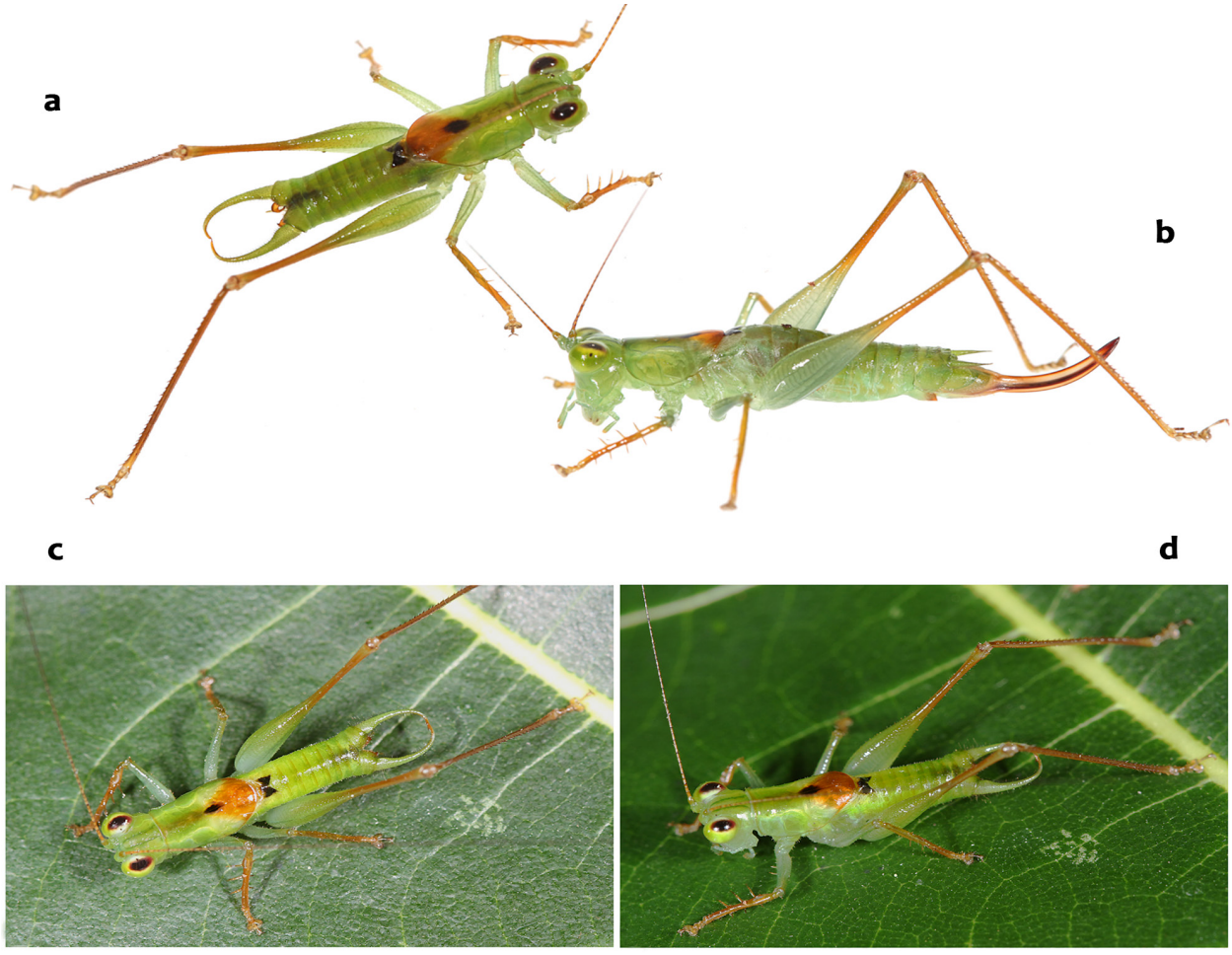

Figure 5. ***Brachyphlugis longicercalis*** **gen. et sp. nov. Living specimens. (a) male; (b) female; (c) male, in dorsal view; (d) male, in lateral view. Figures are not in scale.**

than scapus length (Figs. 1c, 2c); gena smooth, measuring the distance between eyes (Figs. 1c, 2c); clypeus trapezoidal, weakly inflated with two small tubercules on inferior margin (Figs. 1c, 2c). *Thorax*. Auditory spiracle with two distinct regions: the anterior one oval, small, and marked with a middle furrow closed and the posterior one open and almost oval (Figs. 1e, 2e); metasternum with two regions: the anterior one lozenge-shaped almost two times wider than long and weakly inflated, and the posterior one with two small triangular plates (Fig. 1n). *Legs*. Mid tibia with four pairs of ventral spurs; hind tibia dorsally with 38 inner spines, 34 outer spines, and two pairs of preapical spurs. (Fig. 1h-i).

Description of male. *Thorax*. Pronotal disk pronounced and elevated, almost reaching the second abdominal tergite, covering two-thirds of tegmen length (Fig. 1d-e, 5a, c-d). *Tegmen* reaching the fourth tergite, with inner margins broadly overlapped (Fig. 1a, d, 5a, c-d). *Stridulatory area* oval, measuring two-thirds of tegmen length (Fig. 1j, l); right stridulatory file weakly curved with 25 teeth; left stridulatory file weakly sinusoidal with 51 teeth (Fig. 1k, m). *Tenth tergite* divided into two equal sides, each side slightly wider than long in dorsal view and apex broadly rounded, with posterior margin

projecting into the supraanal region forming a triangular plate (Fig. 1p-q). *Cercus* strongly pronounced with a wider base and acuminate apex, internally with a sulcus extending from half the length to the apex (Fig. 1o-s). *Paraproct* divided into two distinct regions: the internal one with a pronounced and almost straight spine and the very rounded external one (Fig. 1p-q). *Subgenital plate* wide, posterior margin straight, with paired distolateral projections, each connected to a stylus (Fig. 1s).

Description of female. *Thorax*. Pronotal disk weakly pronounced, extending beyond thorax, covering two-thirds of tegmen length (Fig. 2d-e). *Subgenital plate* wider than long, posterior margin straight, and with two paired developed triangular projections (Fig. 2h). *Ovipositor* upcurved, weakly longer than abdomen length, with the one-fourth basal portion inflated (Figs. 2i, 5b).

Etymology. The specific epithet refers to the long cercus of males.

Coloration (preserved specimens). General coloration green to yellowish, with dark spots over the body (Fig. 5a-d). Pronotal disk with a central dark macula (circular in males); posterior third orange-brown (Fig. 5a-d). Tegmen green to yellow, with a distinct black macula along the inner margins and occupying almost half of the surface of tegmen in dorsal view (Figs. 1a-d, 2a-b, 5a-d).

Measurements (mm). Male (n=3): BdL 12.5-14.0; PrL 5; TegL 4; FlegL 9; HlegL 25. Female (n=5): BdL 13.5-15; PrL 4.0-4.5; TegL 2.0-2.5; FlegL 10.0-10.5; HlegL 25.5-27.5; OvL 7.5-8.0.

Taxonomic notes. Female specimens were considered conspecific to males of *Brachyphlugis longicercalis* **gen. et sp. nov.** mainly by antennal orbit sclerite dorsally rounded and frontally with weakly pronounced margin; eye three and a half times wider than scapus width; trapezoidal clypeus; black macula along inner margin of tegmina; hind leg tibia dorsally with 38 inner spines, 34 outer spines, and two pairs of preapical spurs.

Holotype: 1 ♂, "BR, RJ, Nova Iguaçu, REBIO do Tinguá I 14-16.II.2020 I Souza-Dias, P.; Siqueira, A. M. col. MNRJ-ENT6-29617"

Allotype: 1 ♀, "BR, RJ, Nova Iguaçu, REBIO do Tinguá I 14-16.II.2020 I Souza-Dias, P.; Siqueira, A. M. col. MNRJ-ENT6-29618"

Paratypes: 1 ♂, "BR, RJ, Nova Iguaçu, REBIO do Tinguá I 14-16.II.2020 I Souza-Dias, P.; Siqueira, A. M. col. MNRJ-ENT6-29619.", 2 ♀, same data as previous. MNRJ-ENT6-29620. MNRJ-ENT6-32028. 1 ♀, "Brasil, RJ, Itatiaia, PN Itatiaia I 22°27'15,10"S 44°36'64,10"W I 809m 11-13.II.2019 I Souza-Dias PGB, Siqueira A.M., Pereira TLP *cols*. MNRJ-ENT6-32030.

Additional material: 1 ♀, "Brasil, RJ, Itatiaia, PN_Itatiaia I 22°27'15.10"S 44°36'64.10"W I 809m 11-13.II.2019 I Souza-Dias PGB., Siqueira A.M., Pereira TLP *leg*.". MNRJ-ENT6-32031. 1 ♂, "BR, RJ, Nova Iguaçu, ReBio do Tinguá I 14-16.II.2020 I Souza-Dias, P.; Siqueira, A.M. col. MNRJ-ENT6-32029.

Brachyphlugis curvata Antunes, Souza-Dias & Takiya **sp. nov.**

Fig. 3-4

Zoobank Life Science Identifier (LSID) - urn:lsid:zoobank.org:act:15E46C7C-F593-497D-8A2A-AD33E7D505C4.

Type locality. Brazil, Rio de Janeiro, Nova Iguaçu, Reserva Biológica do Tinguá **Diagnosis**. Pronotal disk without dark macula (Fig. 3a, d). Male tegmina shorter than in *Brachyphlugis longicercalis* **gen. et sp. nov.**, reaching the third tergite, with the black macula along the inner margins smaller than in *B. longicercalis* **gen. et sp. nov.**; inner margins slightly overlapped (Fig. 3a, d-e). Tenth tergite of male divided into two equal sides, each side with a projected proximal area with apex subacute (Fig. 3a, o-q). Cercus of male pronounced with a larger base, acuminate apex, and internally flat (Fig. 3o-s).

Male paraproct divided into two distinct regions: internal with a curved spine, smaller than in *B. longicercalis* **gen. et sp. nov.**, and external triangular (Fig. 3p-q). Female subgenital plate with two small paired rounded projections (Fig. 4h)

Description. *Head.* Antennal orbit sclerite dorsally with triangular projection (Figs. 3c-d, 4c-d); eye three times wider than scapus width and two times longer than scapus length (Figs. 3c, 4c); gena smooth, smaller than the distance between eyes (Figs. 3c, 4c); clypeus pentagonal, weakly inflated with two small tubercles on inferior margin (Figs. 3c, 4c). *Thorax.* Auditory spiracle with two distinct regions: the anterior one oval, small, and marked with a middle furrow closed and the posterior one open and circular (Figs. 3e, 4e); metasternum divided into two regions: the anterior one lozenge-shaped two times wider than long and the posterior one with two square plates (Fig. 3n). *Legs.* Mid leg tibia with five ventral alternating spurs and a pair of preapical spurs; hind leg tibia dorsally with 28 inner spines, 32 outer spines, and two pairs of preapical spurs. (Fig. 3h-i).

Description of male. *Thorax.* Pronotal disk pronounced, reaching the second abdominal tergite and covering two-thirds of tegmen length (Fig. 3d-e). *Tegmen* reaching the third tergite with inner margins slightly overlapped (Fig. 3a, d). *Stridulatory area* oval, measuring more than 2/3 of tegmen length (Fig. 3j, l); right stridulatory file weakly curved with 22 teeth, left stridulatory file weakly sinusoidal with 45 teeth (Fig. 3k, m). *Tenth tergite* divided into two equal sides, each side with a proximal area strongly projected and downcurved and apex subacute (Fig. 3o-p). *Cercus* pronounced with a large base, acuminate apex and internally flat (Fig. 3o-p, r). *Paraproct* divided into two distinct regions: the internal one with a pronounced curved spine and the external one triangular (Fig. 3q). *Subgenital plate* wide, posterior margin almost straight with paired distolateral projections, each connected to a stylus (Fig. 3r).

Description of female. *Thorax.* Pronotal disk weakly pronounced, reaching the thorax apex, covering half of tegmen length (Fig. 4d-e). *Subgenital plate* wider than long, posterior margin almost straight with two paired small rounded projections (Fig. 4h). *Ovipositor* upcurved, slightly smaller than abdomen length, with the one-fourth basal portion inflated (Fig. 4i).

Etymology. The specific epithet refers to the strongly projected and curved tenth tergite of males.

Coloration (Preserved specimens). General coloration green. Tegmen green to yellow, with a small black spot at apical margin (Figs. 3a-b, 4a-b).

Measurements (mm). Male (n=1): BdL 12.5; PrL 5; TegL 3.5; FlegL 8.0; HlegL 20.5. Female (n=2): BdL 11-13; PrL 4.5; TegL 3.5; FlegL 8.5-9.0; HlegL 23.0-23.5; OvL 8.5-9.0.

Taxonomic notes. Female specimens are herein considered conspecific to males of *Brachyphlugis curvata* **gen. et sp. nov.** mainly by antennal orbit sclerite dorsally with triangular projections; eye three times wider than scapus width; pentagonal clypeus; hind leg tibia dorsally with 28 inner spines, 32 outer spines, and two pairs of preapical spurs.

Holotype: 1 ♂, "Brasil, RJ, Nova Iguaçu, REBIO do Tinguá l 14-16.II.2020 l Souza-Dias, P., Siqueira, A.M. *leg*. MNRJ-ENT6-29621".

Allotype: 1 ♀, "Brasil, RJ, Itatiaia, PN_Itatiaia l 22°27'15.10"S 44°36'64.10"W l 809m 11-13.II.2019 l Souza-Dias PGB., Siqueira A.M., Pereira TLP *leg*.". MNRJ-ENT6-32032

Paratype: 1 ♀, "BR, RJ, Itatiaia, PN Itatiaia, parte baixa, ao redor Casa do Pesquisador l 06-08.II.2020; Souza-Dias, Siqueira, Lima, Borille *cols*. MNRJ-ENT6-32033.

Key to males of neotropical Phlugidini genera (modified from Mendes et al. 2018, Tavares et al. 2022)

1 – Subgenital plate (including styli) produced, generally extending beyond cercus apex....**2**

1'- Subgenital plate (including styli) not reaching cercus apex...**8**

2(1) – Tegmina reaching or extending beyond abdomen apex...**3**

2' – Tegmina reduced, generally reaching third abdominal tergite... **6**

3(2) – Tegmina reaching abdomen apex; mandibles asymmetrical with left mandible ensiform... *Arboraptor* Mendes, Oliveira, Chamorro-Rengifo & Rafael, 2018

3' – Mandibles symmetrical... **4**

4(3) – Tenth tergite not pronounced, if pronounced not covering completely cercus in dorsal view; cercus generally cylindrical with no modifications; subgenital plate stylus expanded and enlarged with a distinctly wider apex... *Phlugis* Stål, 1861

4' – Tenth tergite always pronounced; cercus expanded with modifications or cylindrical; subgenital plate stylus not enlarged or flattened, if enlarged with no distinctly wider region... **5**

5(4) – Cercus cylindrical with acuminate apex; subgenital plate stylus pronounced and cylindrical.... *Cephalophlugis* Gorochov, 1998

5' – Cercus expanded with two lobes; subgenital plate stylus pronounced and generally dorsally or laterally flattened.... *Odontophlugis* Gorochov, 1998

6(2) – Asymmetrical mandibles; tenth tergite not pronounced; cercus apex acuminate; subgenital plate stylus cylindrical... *Anisophlugis* Gorochov, 1998

6' - Symmetrical mandibles...**7**

7(6) – Cercus cylindrical with rounded or acuminate apex; subgenital plate stylus developed with apex wider than rest... *Phlugiola* Karny, 1907

7' – Cercus robust with truncated apex; subgenital plate very expanded with two pseudostyled projections... *Paraphlugiola* Cadena-Castañeda & Gorochov, 2014

8(1) – Macropterous; tenth tergite pronounced; cercus apex with inner margin strongly serrated... *Tyrannoraptor* Mendes, Oliveira, Chamorro-Rengifo & Rafael, 2018

8' – Brachypterous; tenth tergite pronounced; cercus apex with no modifications, generally acuminate or cylindrical...**9**

9(8) – Tenth tergite with two developed cylindrical projections, measuring almost half of the cercus length... *Speculophlugis* Woodrow, Pulver, Veitch & Montealegre-Z, 2021

9' – Tenth tergite with two triangular or rounded projections...**10**

10(9) – Tenth tergite with two poorly triangular projections; cercus cylindrical with a little lobe on middle part and acuminate apex.... *Neophlugis* Gorochov, 1998

10' - Tenth tergite with two enlarged projections, strongly downcurved; cercus cylindrical with acuminate apex.... *Brachyphlugis* **gen. nov.** (Figs. 1-4)

DISCUSSION

Including the two new species described herein, the number of Phlugidini species recorded in Brazil is 21 across seven genera. Recently, the tribe has been investigated by Brazilian taxonomists, and *Brachyphlugis* **gen. nov.** is the fourth genus of Phlugidini described for Brazil in the last seven years, bringing the total to seven genera. The map (Fig. 6) shows the distribution of Phlugidini species described for the country, except for *Phlugis coriacea* (Redtenbacher), *P. nemoptera* Bolívar, *P. permutata* Kastner, *P. similis* Bruner, and *P. spinipes* (Fabricius), whose

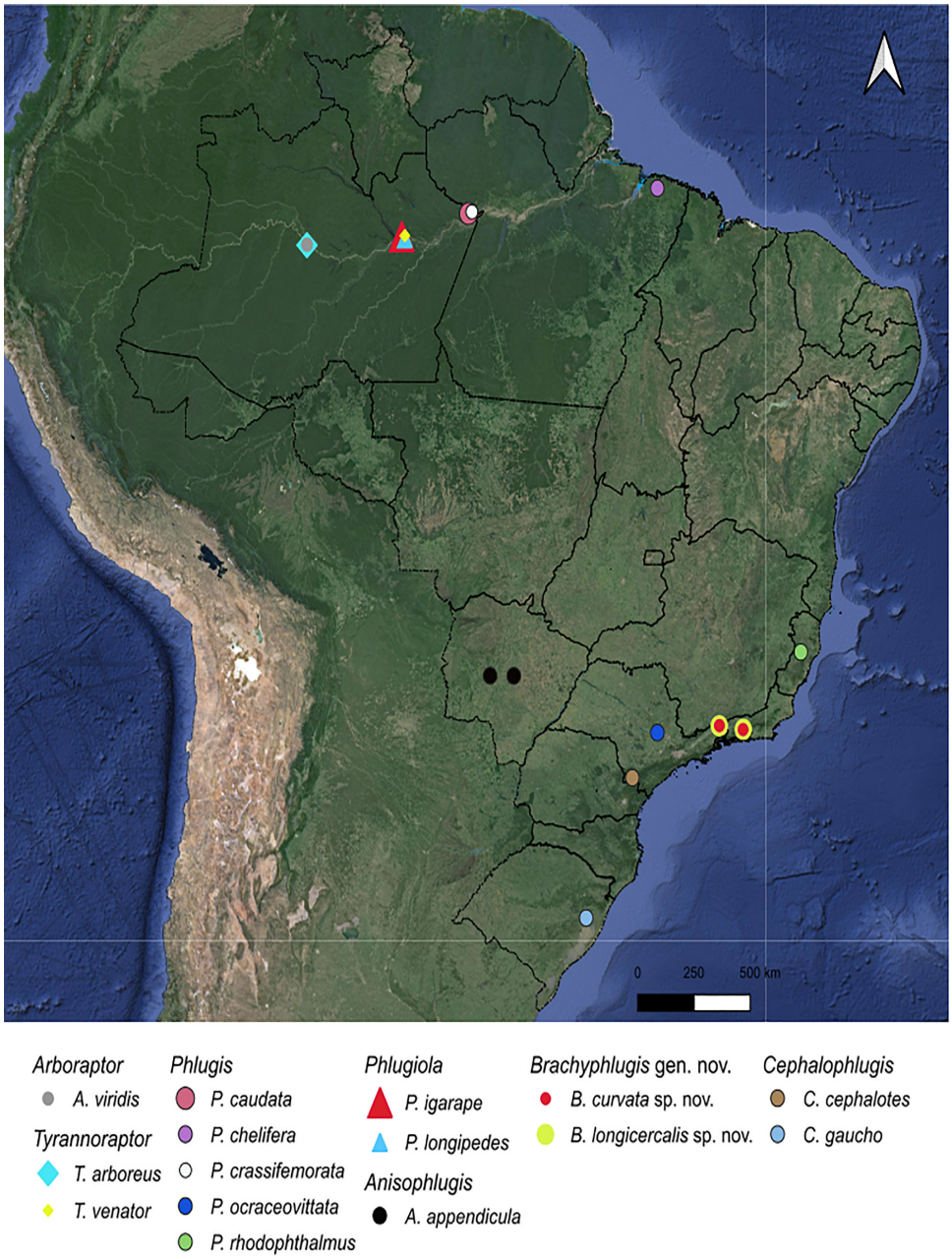

Figure 6. Distribution map of Phlugidini species described in Brazil.

type localities could not be properly located (e.g., Brazil). The map (Fig. 6) also indicates that vast areas of the country have not yet been sampled, suggesting that the diversity of this group is poorly understood in Brazil

Several similarities between *Brachyphlugis* **gen. nov.** and other neotropical Phlugidini genera (Chamorro-Rengifo & Olivier 2017, Mendes et al. 2018, Tavares et al. 2022) were found herein. *Brachyphlugis* **gen. nov.** has symmetrical mandibles, as observed in most Phlugidini genera, except for *Anisophlugis*, *Arboraptor*, and *Tyrannoraptor*, which have asymmetrical mandibles in males. The brachypterous condition is shared between *Brachyphlugis* **gen. nov.**, *Anisophlugis, Neophlugis*, *Paraphlugiola*, *Phlugiola*, and *Speculophlugis*.

The terminalia of males present the most diagnostic characteristics among Phlugidini genera. The modified paraproct is shared between *Brachyphlugis* **gen. nov.**, *Anisophlugis*, *Cephalophlugis*, *Neophlugis*, and *Odontophlugis*. The cercus of *Brachyphlugis* **gen. nov.** is cylindrical with an acuminate apex like in *Anisophlugis*, *Cephalophlugis*, *Paraphlugiola, Speculophlugis*, and some species of *Phlugiola* and *Phlugis*. In the male subgenital plate, *Brachyphlugis* **gen. nov.** does not have very developed or extended styles, resembling *Neophlugis* and *Tyrannoraptor*.

Finally, it is interesting to note how there is a negative correlation between the size of the male cercus and the size of the subgenital plate in the neotropical Phlugidini genera. For example, *Anisophlugis*, *Arboraptor*, *Odontophlugis*, *Paraphlugiola*, *Phlugiola*, and *Phlugis* have subgenital plates modified or at least with very developed or modified styli, often longer than the cerci. On the other hand, *Neophlugis*, *Tyrannoraptor*, *Speculophlugis*, and *Brachyphlugis* **gen. nov.** have well-developed cerci, exceeding the length of the subgenital plate.

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